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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte G. PAUL KONING, PETER C. HAYDEN,
PAULA LONG, and DANIEL E. SUMAN

Appeal 2009-006976
Application 10/762,985¹
Technology Center 2400

Before JOSEPH L. DIXON, JEAN R. HOMERE, and JOHN A. JEFFERY,
Administrative Patent Judges.

HOMERE, *Administrative Patent Judge.*

DECISION ON APPEAL²

¹ Filed on January 21, 2004. This application claims priority from provisional application 60/441,810, filed on January 21, 2003. The real party in interest is Equallogic Inc. (App. Br. 3.)

² The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

I. STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) (2002) from the Examiner's final rejection of claims 1, 3 through 8, and 10 through 13. (App. Br. 3.) Claims 2 and 9 have been cancelled. (*Id.*) We have jurisdiction under 35 U.S.C. § 6(b) (2008).

We affirm-in-part.

Appellants' Invention

Appellants invented a system for both storing data blocks and distributing client requests across a plurality of servers. (Spec. 1, ll. 13-14.)

Illustrative Claim

Independent claim 1 further illustrates the invention as follows:

1. A system for managing a set of connections between a plurality of clients and a plurality of servers based on system load, comprising:

a plurality of storage servers having the set of resources partitioned thereon, each server having

a load monitor process capable of communicating with other load monitor processes for generating a measure of system load, and a client load on each of the plurality of servers; and

a client distribution process, responsive to the system load, and capable of repartitioning the set of client connections for distributing client load by moving at least one client connection from a first server of the plurality of servers to a second server of the plurality of servers.

Prior Art Relied Upon

The Examiner relies on the following prior art as evidence of unpatentability:

O'Neil

6,128,279

Oct. 3, 2000

Rejection on Appeal

The Examiner rejects claims 1, 3 through 8, and 10 through 13 under 35 U.S.C. § 102(e) as being anticipated by O'Neil.

Appellants' Contentions

Appellants contend that O'Neil fails to disclose "a plurality of storage servers having the set of resources partitioned thereon," as recited in independent claim 1. (App. Br. 9-10.) Appellants argue that O'Neil fails to disclose partitioning resources across storage servers, and that O'Neil's servers do not provide access to a resource having a portion partitioned thereon. (*Id.* at 10.) Appellants also allege that O'Neil discloses load balancing among multiple identical servers, each of which provides the requested resource, whereas the claimed invention is directed to partitioning the resource such that some parts of the resource are available only on one server and other parts of the resource are available on another server. (Reply Br. 4-6.) Moreover, Appellants contend that O'Neil's disclosure of memory locations that store a load value, in conjunction with reprogramming the load value, does not teach partitioning resources. (*Id.* at 6.)

Further, Appellants argue that O'Neil's disclosure of re-routing client requests to a new server does not teach moving established client connections between servers. (App. Br. 10-11.) In particular, Appellants allege that O'Neil's disclosure of re-routing a client request does not teach moving a given connect from one server to another, but rather involves breaking the connection and sending a message that redirects the client to a new server. (Reply Br. 6-7.) Additionally, Appellants contend that O'Neil's embodiment directed to the World Wide Web (hereinafter "WWW") involves connections to Hypertext Transfer Protocol (hereinafter "HTTP")

that are short lived. (App. Br. 11.) Therefore, Appellants argue that O'Neil discloses closing HTTP connections after a single request response pair, whereas the claimed invention is directed to moving connections. (*Id.*)

Examiner's Findings and Conclusions

The Examiner finds that O'Neil discloses dividing the servers into two groups, whereby the first group of servers is capable of handling a load greater than a first determined value and the second group of servers is capable of handling a load less than the first determined value. (Ans. 6.) Therefore, the Examiner finds that O'Neil's disclosure teaches allocating resource requests between the two groups of servers based on their capability of handling certain loads. (*Id.* at 6-7.) The Examiner also finds that O'Neil discloses that the memory of each server is configured to store a set of resources, a first predetermined value, and a second predetermined value. (*Id.* at 7.) Therefore, O'Neil teaches partitioning the memory of each server. (*Id.*)

Further, the Examiner finds that O'Neil discloses processing a request on an online server, an offline server, or a server capable of handling a bigger load. (*Id.*) In particular, the Examiner finds that O'Neil's disclosure of a load balancing technique that redirects a client request to a server capable of handling a bigger load teaches moving established client connections between servers. (*Id.*)

II. ISSUE

Have Appellants shown that the Examiner erred in finding that O'Neil anticipates independent claim 1? In particular, the issue turns on whether O'Neil teaches the following claim limitations:

- (a) “a plurality of storage servers having the set of resources partitioned thereon,” as recited in independent claim 1; and
- (b) “a client distribution process, responsive to the system load, and capable of repartitioning the set of client connections for distributing client load by moving at least one client connection from a first server of the plurality of servers to a second server of the plurality of servers,” as recited in independent claim 1.

III. FINDINGS OF FACT

The following Findings of Fact (hereinafter “FF”) are shown by a preponderance of the evidence.

O’Neil

FF 1. O’Neil discloses implementing a peer-to-peer load balancing system in a network of servers, whereby each server is capable of distributing a request among the other servers within the network based on either the load currently being processed in the respective server, or the contents of the request. (Col. 1, ll. 8-14.)

FF 2. O’Neil’s figure 1 depicts the topology of a web site (1), which includes a router (2), local domain name server (hereinafter “DNS”) (4), a server cluster comprising web servers (7, 9, & 10), a packet filter (11), and an internal network (12). (Col. 5, ll. 7-12.) In particular, O’Neil discloses that web servers (7, 9, & 10) each include a microprocessor and memory that stores process steps to effect information retrieval. (*Id.* at ll. 26-28.) Moreover, O’Neil discloses that the memory in each web server (7, 9, & 10) is also capable of storing and maintaining programs and other data between power cycles, and being reprogrammed periodically. (*Id.* at ll. 28-32.)

FF 3. O’Neil discloses that the memory of each web server (7, 9, & 10) also stores a computer-executable module comprising process steps for performing peer-to-peer load balancing. (*Id.* at ll. 34-37.) That is, O’Neil discloses that web server (7) includes load balancing module (17), web server (9) includes load balancing module (19), and web server (10) includes load balancing module (20). (*Id.* at ll. 37-40.) O’Neil discloses that the microprocessors on the web servers (7, 9, & 10) execute the load balancing modules (17, 19, & 20) so as to distribute requests among each web server. (*Id.* at ll. 40-42.)

FF 4. O’Neil discloses that the “load balancing modules continuously exchange information regarding their respective loads, so that this information is instantly available for comparison.” (Col. 6, ll. 42-44.)

IV. ANALYSIS

Claim 1

Independent claim 1 recites, in relevant part:

1) a plurality of storage servers having the set of resources partitioned thereon; and 2) a client distribution process, responsive to the system load, and capable of repartitioning the set of client connections for distributing client load by moving at least one client connection from a first server of the plurality of servers to a second server of the plurality of servers.

First, we consider the scope and meaning of the phrase “a plurality of storage servers having the set of resources partitioned thereon,” which must be given the broadest reasonable interpretation consistent with Appellants’ disclosure, as explained in *In re Morris*, 127 F.3d 1048 (Fed. Cir. 1997):

[T]he PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary

usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification.

Id. at 1054. *See also* Zletz, 893 F.2d 319, 321 (Fed. Cir. 1989) (stating that “claims must be interpreted as broadly as their terms reasonably allow.”)

Appellants’ Specification states that:

[i]n a typical operation, a client 12 will contact one of the servers, for example server 161, in the group 16 to access *a resource, such as a data block, page, file, database, application, or other resource.*

(Spec. 9, ll. 14-16)(emphasis added.)

Appellants’ Specification also states that:

there is no specific limit on the number of resources or data volumes. Each data volume may be contained entirely on a single server, or it may be partitioned over several servers, either all of the servers in the server group, or a subset of the server group.

(Spec. 10, ll. 10-13.)

Our reviewing court states, “the ‘ordinary meaning’ of a claim term is its meaning to the ordinary artisan after reading the entire patent.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1321 (Fed. Cir. 2005).

Upon reviewing Appellants’ Specification for context, we conclude that the claimed phrase “a plurality of storage servers having the set of resources partitioned thereon” may be broadly, but reasonably construed as storing at least two or more data blocks, pages, files, databases, applications, or other resources on each server within the plurality of servers.

As detailed in the Findings of Fact section above, O’Neil discloses a network of servers that implements a peer-to-peer load balancing system, whereby each server can distribute a request among the other servers based

on either the load capabilities of each server or the contents of the request. (FF 1.) In particular, O’Neil discloses a plurality of web servers, each of which includes a microprocessor and memory that stores process steps for information retrieval. (FF 2.) Moreover, O’Neil discloses that the memory in each web server is also capable of storing programs and other data. (*Id.*)

We find that O’Neil’s disclosure teaches a load balancing system that consists of a network of web servers, each of which includes memory for storing programs and other data. Therefore, consistent with our claim construction above, we find that O’Neil’s disclosure teaches storing both programs and other data on the memory located within each web server. Thus, we find that O’Neil teaches “a plurality of storage servers having the set of resources partitioned thereon,” as recited in independent claim 1.

Next, O’Neil discloses that the memory of each web server is also capable of storing a module that performs peer-to-peer load balancing. (FF 3.) In particular, O’Neil discloses that the microprocessor on each web server executes the load balancing module so as to redistribute or redirect a request to another web server within the load balancing system. (*Id.*) Further, O’Neil discloses that the load balancing modules continuously exchange information pertaining to their respective load capabilities, so that such information is instantly available for comparison. (FF 4.)

We find that O’Neil’s disclosure teaches that each web server incorporates a load balancing module, which redirects a client request from a first web server to a second web server based on the respective load capabilities of each web server. Consequently, we find that O’Neil’s disclosure teaches a client distribution process that monitors and communicates the respective load capabilities of each web server before

moving a client connection from a first web server to a second web server. Thus, we find that O'Neil teaches "a client distribution process, responsive to the system load, and capable of repartitioning the set of client connections for distributing client load by moving at least one client connection from a first server of the plurality of servers to a second server of the plurality of servers," as recited in independent claim 1.

Alternatively, we note that the disputed claim limitation only requires "a client distribution process, responsive to the system load, and *capable of* repartitioning the set of client connections for distributing client load...". (Claims App'x) (emphasis added.) We find that this recitation merely requires that the client distribution process be capable of performing the recited function of repartitioning. Such recitation does not require, however, that the client distribution process actually perform the recited function of repartitioning. This recitation is a statement of intended use, which is fully met by a prior art structure that is capable of performing the recited function. A statement of intended use in an apparatus claim cannot distinguish over a prior art apparatus that discloses all the recited limitations and is capable of performing the recited function. *See In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997). We note that "[a]n intended use or purpose usually will not limit the scope of the claim because such statements usually do no more than define a context in which the invention operates." *Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp.*, 320 F.3d 1339, 1345 (Fed. Cir. 2003). Although "[s]uch statements often ... appear in the claim's preamble," *In re Stencel*, 828 F.2d 751, 754 (Fed. Cir. 1987), a statement of intended use or purpose can appear elsewhere in a claim. *Id.* We are therefore satisfied that the O'Neil teaches an equivalent structure that is

capable utilizing a client distribution process to perform the recited function of repartitioning. (FFs 3 & 4.) It follows that Appellants have not shown that the Examiner erred in finding that O'Neil anticipates independent claim 1.

Claims 3 through 8 and 11

Appellants do not provide separate arguments for patentability with respect to dependent claims 3 through 8 and 11. Therefore, we select independent claim 1 as representative of the cited claims. Consequently, Appellants have not shown error in the Examiner's rejection of dependent claims 3 through 8 and 11 for the reasons set forth in our discussion of independent claim 1. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Claim 10

Appellants contend that O'Neil's disclosure of a load balancing technique that is based on a predetermined level does not teach "wherein the client distribution process adaptively distributes client connections across the plurality of servers as a function of dynamic variations in measured system load," as recited in dependent claim 10. (App. Br. 12.) In particular, Appellants argue that O'Neil's load balancing technique utilizes a set predetermined level, whereas the claimed "client distribution process" is adaptively distributed based on dynamic variations (i.e., multiple dimensions, the specific decisions made for a given set of measurements that may depend on administrative policies, historical data about client activity, the capabilities of the various servers and network components, etc.). (*Id.*) We do not agree.

As set forth above, O'Neil's disclosure teaches a client distribution process that monitors and communicates the respective load capabilities of

each web server before moving a client connection from a first web server to a second web server. Consequently, we find that O'Neil's client distribution process adaptively distributes client connections as a function of monitoring and communicating the load capabilities of the various web servers within the disclosed system. Thus, we find that O'Neil teaches the disputed limitation. It follows that Appellants have not shown that the Examiner erred in finding that O'Neil anticipates dependent claim 10.

Claim 12

Appellants contend that O'Neil fails to teach "a storage device for providing at least one volume of storage partitioned across the plurality of servers," as recited in dependent claim 12. (App. Br. 13.) In particular, Appellants argue that O'Neil's back-end servers do not have at least one volume of storage that is partitioned across the plurality of servers. (*Id.*) We agree.

As set forth above, we find that O'Neil's disclosure teaches storing both programs and other data on the memory located within each web server. However, we find that O'Neil fails to teach or fairly suggest a storage device that provides at least one volume of storage partitioned across the plurality of servers. While the memory located within each of O'Neil's web servers may be capable of aggregating at least one volume of storage partitioned across the plurality of servers, such conjecture would require us to resort to speculation, unfounded assumptions, or hindsight reconstruction. *See In re Warner*, 379 F.2d 1011, 1017 (CCPA 1967). We will not resort to such speculation or assumptions to cure the deficiencies in the factual basis in order to support the Examiner's rejection. Therefore, we find that the Examiner has improperly relied upon O'Neil's disclosure to teach or fairly

suggest the disputed limitation. It follows that Appellants have shown that the Examiner erred in finding that O'Neil anticipates dependent claim 12.

Claim 13

Appellants contend that O'Neil fails to teach utilizing servers to provide "[a] storage area network," as recited in dependent claim 13. (App. Br. 13.) In particular, Appellants argue that O'Neil's web servers do not provide storage area network functionality. (Reply Br. 7-8.) We do not agree.

As set forth above, O'Neil's disclosure teaches a load balancing system that consists of a network of web servers, each of which includes memory for storing programs and other data. In particular, we find that O'Neil's network of web servers, each of which includes memory, amounts to a group of servers that functions as both a network and storage device. Thus, we find that O'Neil's disclosure teaches the disputed limitation. It follows that Appellants have not shown that the Examiner erred in finding that O'Neil anticipates dependent claim 13.

V. CONCLUSIONS OF LAW

1. Appellants have not shown that the Examiner erred in rejecting claims 1, 3 through 8, 10, 11, and 13 as being anticipated under 35 U.S.C. § 102(e).
2. Appellants have shown that the Examiner erred in rejecting claim 12 as being anticipated under 35 U.S.C. § 102(e).

VI. DECISION

1. We affirm the Examiner's decision to reject claims 1, 3 through 8, 10, 11, and 13 as being anticipated under 35 U.S.C. § 102(e).

2. We reverse the Examiner's decision to reject claim 12 as being anticipated under 35 U.S.C. § 102(e).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART

Vsh

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